

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 1-12, 15, and 16 are pending. Claims 13 and 14 are canceled. Claims 1-6 are withdrawn. Claim 7 is amended. Claims 15 and 16 are newly added. Support for the amendment to Claim 7 can be found in Fig. 3, for example. Support for newly added Claim 15 can be found in Fig. 3, for example. Support for newly added Claim 16 can be found in the published application in numbered paragraph [0045], for example. No new matter is added.

In the outstanding Office Action, Claims 7, 9, and 11-14 were rejected under 35 U.S.C. § 102(a) as anticipated by Numazawa et al. (Japanese Patent No. JP 2002-343787, herein "Numazawa"). Claims 7-9 and 11-14 were rejected under 35 U.S.C. § 103(a) as obvious over Koshiishi et al. (U.S. Patent No. 5,919,332, herein "Koshiishi") in view of Numazawa and Yada et al. (Japanese Patent No. JP 2002-359203, herein "Yada"). Claim 10 was rejected under 35 U.S.C. § 103(a) as obvious over Koshiishi, Numazawa, Yada, and Tsuchiya et al. (U.S. Patent No. 5,716,534, herein "Tsuchiya").

Regarding the rejection of Claims 7, 9, and 11-14 as anticipated by Numazawa, Applicants respectfully submit that as Claims 13 and 14 are canceled, any rejection of these claims is negated.

Amended independent Claim 7 recites, in part:

wherein the drive mechanism maintains the spacing at a constant second spacing, which is larger than a constant first spacing, for an initial period of time immediately after the time of plasma ignition,

wherein the drive mechanism subsequently sets the spacing from the constant second spacing directly to the constant first spacing,

wherein the drive mechanism subsequently sets the spacing from the constant first spacing directly to [[a]] the constant second spacing, before the time of plasma extinction.

Accordingly, the drive mechanism maintains the spacing at a constant second spacing, which is larger than a constant first spacing, for an initial period of time **immediately after the time of plasma ignition**. The drive mechanism subsequently sets the spacing from the constant second spacing **directly to the constant first spacing**. The drive mechanism subsequently sets the spacing from the constant first spacing **directly to the constant second spacing** before the time of plasma extinction.

These configurations assist in preventing charging damage to the object to be processed at the time of the plasma ignition and extinction.

Numazawa states, in paragraph [0041]:

In the plasma CVD device which has the above-mentioned composition, when the lower electrode 14 goes up and it is usually in an upper limit position, it is a position in which a membrane formation process is performed, and when the lower electrode 14 descends, it is a position to which substrate transportation is carried out. When a membrane formation process is completed, plasma is made from proper timing (after substrate taking out etc.), and cleaning is performed. This cleaning process is step cleaning which consists of two or more steps (stage). **In this step cleaning, the lower electrode 14 cleans at the first step by moving to an upper limit position, exciting plasma discharge in a narrow space and generating plasma, such as low density.** In the final step of step cleaning, the lower electrode 14 is moved to a lower limit position.¹

Thus, Numazawa waits to ignite plasma until the lower electrode has been moved to narrow the processing space. Accordingly, Numazawa does not disclose the drive mechanism maintains the spacing at a constant second spacing, which is larger than a constant first spacing, for an initial period of time immediately after the time of plasma ignition.

Regarding the rejection of Claims 7-9 and 11-14 as obvious over Koshiishi, Numazawa, and Yada and the rejection of Claim 10 as obvious over Koshiishi, Numazawa, Yada, and Tsuchiya, those rejections are respectfully traversed by the present response.

¹ Emphasis added.

The outstanding Office Action acknowledges that:

Koshiishi et al. fail to teach wherein the drive mechanism maintains the spacing at a first spacing after the time of plasma ignition and the drive mechanism sets the spacing from a first spacing to a second spacing before the time of plasma extinction and after the time of plasma ignition, and the second spacing is larger than the first spacing.²

Thus, Koshiishi fails to disclose that the drive mechanism maintains a first spacing after plasma ignition and the drive mechanism sets the first spacing from a second spacing to the first spacing after the time of plasma ignition as recited in amended independent Claim 7.

The outstanding Office Action relies on Numazawa and Yada for the above-noted features. However, as noted above in the discussion of the rejection of Claim 7 as anticipated by Numazawa, Numazawa fails to disclose that the drive mechanism maintains a constant second spacing larger than a first spacing for an initial period of time immediately after the time of plasma ignition. Accordingly, no proper combination of Koshiishi and Numazawa would include all of the features recited in amended independent Claim 7.

Yada also fails to remedy the deficiencies acknowledged in the outstanding Office Action regarding Koshiishi. Additionally, Tsuchiya suffers from the same deficiencies.

Yada and Tsuchiya merely describe the plasma processing apparatus including a driving mechanism.

Yada does not disclose the features of Claim 7 discussed above. Rather, Yada describes, in Fig. 2, a spacing between electrodes that changes from **4 centimeters to 1 centimeter and then to approximately 1.5 centimeters during plasma processing. Before the end of plasma processing, the spacing changes from approximately 1.5 centimeters back to 1 centimeter and then back to 4 centimeters.** Yada does not maintain a constant second spacing for an initial period of time immediately after the time of plasma ignition as recited in amended independent Claim 7. Nor does Yada subsequently set the spacing from

² Outstanding Office Action, page 5.

the constant second spacing **directly** to a **constant** first spacing as recited in amended independent Claim 7. Additionally, Yada fails to subsequently set the spacing from the constant first spacing **directly** to the **constant** second spacing before the time of plasma extinction. Instead, as shown in Fig. 2, Yada discloses no constant second spacing, and does not directly change from a second spacing to a constant first spacing or from a constant first spacing to a constant second spacing.

The outstanding Office Action relies on Tsuchiya for the feature of an apparatus that turns off a first high-frequency power after turning off a second high-frequency power. However, Tsuchiya does not teach or suggest an adjusting mechanism that has a drive mechanism configured to make a spacing larger before a time of plasma extinction than the spacing during plasma processing. Accordingly, no proper combination of Koshiishi, Numazawa, Yada, or Tsuchiya would include all of the features recited in amended independent Claim 7 or Claim 10 depending therefrom.

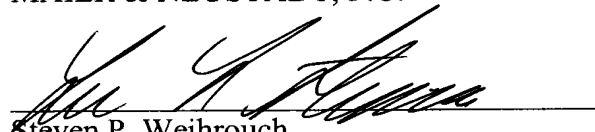
Newly added dependent Claims 15 and 16 each depend from Claim 7 and patentably distinguish over any proper combination of the cited references for at least the same reasons Claim 7 does.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. A Notice of Allowance for Claims 7-12, 15, and 16 is earnestly solicited.

Should Examiner Crowell deem that any further action is necessary to place this application in even better form for allowance, she is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

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